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JANUARY
1947

JOURNAL OF THE WIRELESS INSTITUTE OF AUSTRALIA

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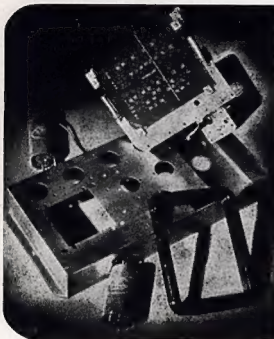
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Editorial

There seems to be some confusion in certain quarters concerning the administrative set-up of the W.I.A. Since this confusion appears to exist rather more outside the Institute than within its ranks, we might, if we felt so uncharitable, consider that it is more deliberate than accidental.

Acting upon the old adage, "if you don't tell 'em you can't expect them to know," let us review the facts. Firstly the W.I.A. is thoroughly democratic—any member may, if he is willing to devote his energies to helping his fellow members, attain the highest office in the Institute, subject of course to geographical circumstances in the case of Federal Executive posts. Likewise any member has the equal right with all other members to express his opinion at meetings, or through "Amateur Radio," on any subject of concern to Hams.

Let us banish once and for all the old fiction that the Institute is under the control of some remote clique referred to as "F.H.Q." This Institute never has, and, we trust, never will be so controlled. The plain truth is that the whole governing power rests with the members.

The organisation of the W.I.A. is analogous to that of the States and the Commonwealth of Australia, the members being the electors, the Divisional Councils the State Parliaments, the Federal Council the Federal Parliament, and the Federal Executive, like the Commonwealth Executive Council, is empowered only to carry out the will of the Federal Council. The sole vital point of difference is that while there are within the W.I.A. both conservatives and radicals in profusion, there are no parties, no "haves" and "have-nots," all being Hams, and therefore fundamentally equal.

So close is this analogy that in drafting the new Federal Constitution of the W.I.A. we have used

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"THE TERRIFIC TWO WATTER"

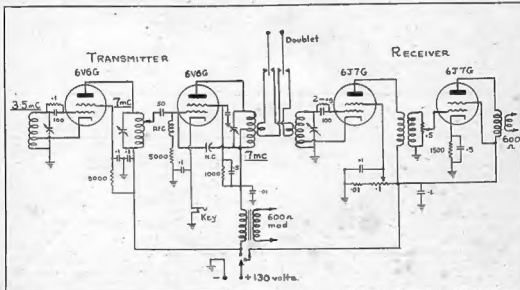
BY D. A. GREENHAM, VK3CO*

During the past few years the work of Trunk Line testing and measurements has carried the author to all parts of the State and after the resumption of amateur activities the idea of carrying a portable rig naturally was in the forefront. Early this year, after the release of the 28 Mc. band, a small portable was built to operate on that band. Due to the forced use of batteries the power was very small, in the vicinity of 3 watts. The set-up on 28 Mc. consisted of a 6V6G as an ECO on 14 Mc., doubling in its plate circuit, driving a 6V6G as a straight final. The plate supply was derived from a 135 volts bank of B batteries.

The receiver was a 6J7G regen-det. driving a 6J7G as audio stage. This set up was used from the test van and quite good success was had. The antenna used in these operations depended largely on the facilities available. Trees, post office clock towers, telephone poles, fences, or any other prominent object above the ground level is always an antenna possibility. Some months ago when

for many miles, the contacts possible after skip failure were absolutely nil.

After the release of the 7 Mc. band the gear was changed to operate in that band with the same tubes—6V6G ECO on 3.5 Mc. and 6V6G PA. The receiver was left as 6J7G det. and 6J7G audio. The gear is operating in that condition at the present moment with the addition of a modulator for phone operation. The modulator consists of an amplifier with a speaker incorporated, which makes it either a modulator or an amplifier to add to the receiver. A single button carbon mike is also fitted in the unit so that normally the unit is an amplifier ending on a 5-inch permag. speaker. On the operation of a switch the mike is excited and placed on the input of the amplifier and the output is brought out to terminals via line transformer. This can be connected to the line transformer in the plate and screen circuit of the 6V6G final amplifier. The amplifier-modulator unit consists of a 6J7G resistance capacity coupled to a 6V6G.



operating from Euroa and Wangaratta VK6 was worked with an R7 report and also ZL4 with an R7/8 report which is very encouraging with such a small set-up. The shortest distance worked was whilst at Wangaratta, the "shack" was parked outside the front gate of VK3YV and a contact was made on 28 Mc. over a distance of 50 yards! To prove the connection QSL cards were exchanged there and then with Howard, the OM of that station.

The main limitations however were found to be the frequency used and the low power. When the station was operated in a town where there were no local stations

On the 7 Mc. band the antenna problem is increased due to the larger physical length but the added improvement of the whole equipment is certainly worth the extra effort in installation. At the time of writing the equipment is in use at Geelong and very pleasing results have been obtained into VK2, 3, 4, 5 and 7, and also over to ZL. The band conditions at the moment make operation difficult during "peak periods" owing to the higher power QRM, but with careful operating and waiting until the time is right, very solid contacts have been made.

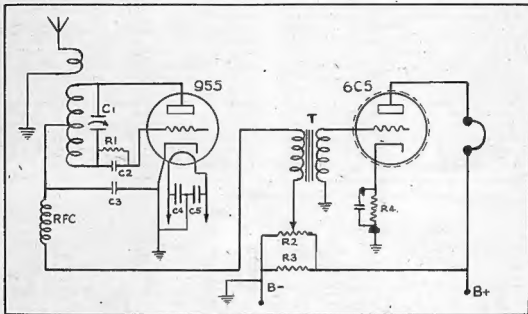
The circuit of the unit is shown and the whole unit, receiver and transmitter, is mounted on one chassis with a single send-receive switch. The unit has only the bare

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*35 Bertram Street, Gardenvale, S.4, Victoria.

FROM JUNKBOX TO 166 MEGS.

BY J. COULTER, VK5JD*



It's quite a jump from the junkbox to 166 and it might be thought impossible, but that is not so. With a little re-vamping and a bit of "poly," much can be achieved. Further, all the material used was obtained in VK, a big advantage when breaking new ground.

Two receivers have been constructed and put in operation, with satisfactory results. Detectors in both are identical, but the second is built on a smaller chassis and more attention was paid to the appearance.

Before proceeding with the construction, a few observations may be in order. The bracket which supports the 955 may be termed the "detector chassis" as all earths (the whole three of them) are made to a single point on this bracket. Previous to making the detector earths to this point, regeneration was very patchy.

The value of the plate bypass appears to be critical and it is possible that other constructors may find another value more suitable.

It seems most desirable that the antenna coupling be variable and for greatest convenience a control has been brought out to the front panel. No doubt there are other and perhaps better mechanical arrangements than that described.

The tuning condenser is a re-vamped "Wetless," well remembered by the not-so-old-timers. First, the condenser is stripped down and the insulation replaced with strips of polystyrene. All the fixed plates are removed, with the exception of the second from the front and the second from the rear. Having done this, both mounting bars are cut in the centre and filed clean. The rotor is stripped down until there are but four plates, two of

- L1—2 turns, 7/16-inch diam.
- L2—4 turns, 7/16-inch diam.
- C1—Split stator (rotors floating)
- C2—50 mmfd.
- C3—250 mmfd.
- C4, C5—100 mmfd.
- C6—10 mfd.
- R1—5 Meg.
- R2—50,000 Ohms.
- R3—20,000 Ohms.
- R4—2,000 Ohms.
- T—3-1 ratio.
- RFC— $\frac{1}{2}$ wave, 20 gauge, wound on pencil.

which enmesh the front stator and two the rear stator. An examination of the attached sketch will, perhaps, make this clearer. The result is a split stator condenser of very small capacity. Incidentally, with this condenser, the bandspread is approximately 150 degrees on 166 Mc.

The most suitable antenna seems to vary. At Seaton Park signals from VK5GF, approximately 11 miles distant, could be read on most any piece of wire. Best results being obtained on a half-wave 60 feet up. However, things were much different at the writer's QTH and it was three weeks before signals were copied.

CONSTRUCTION

The main chassis is constructed from a piece of aluminium 13 inches by 6 inches, bent and cut as shown in the diagram. The panel measures 10 $\frac{1}{2}$ inches by 7 inches and is secured to the chassis by means of a piece of $\frac{1}{2}$ by $\frac{1}{2}$ inch aluminium, angle along the front edge and by

(Continued on Page 21)

BROADCAST INTERFERENCE FROM AMATEUR STATIONS

BY DES. GREENHAM, VK3CO*

Since the return of the 3.5, 7 and 14 Mc. amateur bands the problem of Broadcast Interference (BCL) becomes a serious reality in built-up residential areas. It is proposed in this article to deal with the different forms of interference, methods of location and methods of elimination.

The first and most common form of BCL trouble is called "blanketing." This is usually found in simple type receivers such as the crystal set, Reinartz one and two tube sets, and the more complicated TRF set. The reason for this is that the field strength of the interfering signal is so great that the tuned grid circuit of the detector valve cannot completely eliminate it. This causes a small voltage of the amateur station frequency to be applied to the detector stage and the audio component is heard all over the tuning range of the receiver.

The second form of interference is received through the AC supply mains and detected in the detector stage or in some cases detected in the audio section of the receiver. The third and most stubborn of cases is picked up by the wiring in TRF and super-het. receivers.

After the amateur has been informed either by the Radio Inspector or direct by the listener it is advisable to keep off the air until action can be taken. The most effective method of testing is to arrange with the listener a suitable time when they have no special programme to hear. The amateur should then have someone to operate his station, a fellow amateur, if possible, and listen to the interference. The first test should be to ascertain if the signal can be tuned. If so, then the interference is not blanketing but definite pickup either from the antenna or earth or the set wiring. If it cannot be tuned and is all over the tuning range then it is a case of blanketing or pickup in some stage following the tuned RF stages.

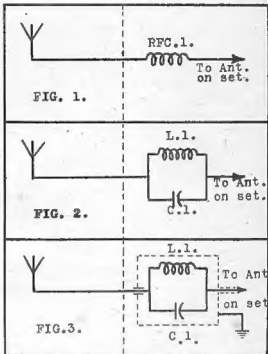
The next test is to remove the antenna from the receiver. If the signal disappears it is picked up from the antenna and the remedy is relatively simple. If it does not it is possibly coming in through the AC supply mains. In this case an RF filter is needed to check this source. This will be described later.

In cases where the interference is being picked up in the set itself then the wiring should be inspected for long unshielded leads, unshielded high gain tubes, or unshielded coils. One very elusive form of interference is that brought about by the detector action of a faulty wire connection in the preamplifier stage of the audio section. Interference in superhet receivers often appears in the form of several "spots" on the tuning range. These "spots" can be subharmonics of the transmitters or can be due to pickup in leads as mentioned previously.

The simplest form of interference, i.e., blanketing of a simple receiver from an outdoor antenna can often be eliminated by the insertion of a low inductance RF choke in the antenna lead as shown in Figure 1.

If the interference is fairly low the method shown in Figure 1 will often completely eliminate all trouble. This method is rather detrimental to the performance of the short wave section of a dual wave receiver.

In cases where the interference is more severe and the choke method does not completely eliminate the trouble, then further steps must be taken. The next method is the use of a parallel tuned "wave-trap" in the antenna. Before attempting to adjust the wave-trap it should be checked for resonance. This can be easily be done by placing the coil close to the final tank coil of the transmitter and tuning the wave-trap until an increase in plate current is noticed. This should take place when the trap tuning condenser is in about half mesh so as to allow for adjust-



ment either way. The trap should be installed as shown in Figure 2.

When it is first installed and is not tuned the interference is increased and this may tend to alarm the operator but by carefully tuning the condenser the signal will completely disappear and the wave-trap should be set at that value and left. Care should be exercised in the placing of the unit so as it will not be knocked by the housewife in her cleaning duties. It is also advisable to place it under the chassis shelf so that curious listeners cannot interfere with the adjustment. This method is very effective but it has the disadvantage that if the transmitter frequency is changed the trap is no longer effective. On dual-wave receivers the short wave section still operates on all frequencies except for a few kilocycles either side of the wave-trap resonant frequency. This is not a very serious disadvantage however. In some cases where the interfering signal strength is very high it is often necessary to shield the wave-trap and earth the shield. The lead from the trap to the receiver terminals should be braided cable to prevent RF pickup as shown in Figure 3.

In cases where the pickup is due to set wiring, the method is to examine the set's stages in turn and ascertain which stage is causing the pickup. It is then a matter of trial and error to see the actual cause of the pickup, whether it be unshielded coils, leads, or tubes.

In cases where the station operates on more than one band and interference occurs on more than one band, it

*35 Bertram Street, Gardenvale, S.4, Victoria.

then may require a trap for each frequency concerned. These can be mounted together and each tuned as shown in Figure 4.

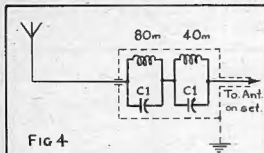


FIG 4

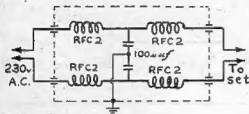


FIG 5

In some rare cases where high outdoor antennas are used on BCL sets and the length is resonant at the transmitted frequency i.e. $\frac{1}{4}$, $\frac{1}{2}$, or 1 wave length, then the pickup is very severe. In these cases it is advisable with the listener's consent, to shorten the antenna. If this is not convenient or the listener objects, then a small value condenser in series with the antenna, or from antenna to earth, will alter its resonant frequency and reduce pickup.

Referring back to the AC mains type of interference it is quite a sound scheme for an amateur station to carry a small RF line filter for test purposes. The supply mains to the transmitter should be fitted with an RF filter to prevent any transmission back over the lines. In cases where line pickup is causing the interference then the RF filter should be fitted in the listener's set. The filter is shown in Figure 5.

Values for Figures 2-4 are tabulated below:—

M/c	3.5	7	14	28	
L1	30	16	10	4	Turns 1½" diam.
C1	.0005*	.0005*	.0005*	.0001	Mfd.

*Any type of broadcast tuning condenser is suitable.

A convenient method is to wind coils on valve bases with the pins removed and screw the base on the condenser itself. The turns shown in the table are for average sized tube bases. In shielding the wave-trap care should be exercised in mounting the condenser as the shaft is not connected to the shield. Insulating bushes should be used. One form of interference is that which occurs into the telephone lines. This appears very pronounced on the old types of telephone installations. It has been known to be of such a volume as to be louder than the telephone conversation. This condition is brought about by pickup from the serial telephone wires and a detection action by the carbon granules in the telephone transmitter (microphone) circuit. This is a matter for

(Continued on Page 22)

NOVEL FILAMENT CIRCUIT FOR DC AREAS.

By S. ZEUNERT VK3SZ

The Ham in the DC supplied town is always at a disadvantage mainly because of two things:—

- (a) Filament voltage for tubes taking more than 3 amp. each is hard to obtain.
- (b) Plate voltage is necessarily limited.

This hint is designed to overcome the disadvantage mentioned at (a). Tubes of the 6L6, 807 class work reasonably well on a plate voltage of 230 but their heater demands a current of .9 amp. at a voltage of 6 volts. This can be easily obtained with a suitable series resistance, as DC town Hams know only too well, no fixed series resistance in a filament circuit is of much use because of violent voltage fluctuations, especially at night.

By use of a type 302 barretter, which is a current regulating device, the current flowing through the heater of the valve can be accurately maintained over a wide variation in mains voltage. However the 302 is a 300 milliamp. barretter and ordinarily can be used only with valves drawing 3 amp. or less, those valves drawing less being shunted with a resistance of suitable value.

In the circuit shown it will be seen that 3 barretter lamps are used, one in series with the valve heaters of the modulator, one for the 3 amp. heaters of the transmitter and one for the receiver. The "ends" of these circuits are then connected in parallel. .9 amp. will be flowing through each "leg" of the circuit, therefore we can place the heaters of our 807s, 6L6Gs in one leg and we have .9 amp. flowing through them, .9 of one which is automatically regulated by the barretters.

By "suitable" switching we can arrange for any one unit to be "on" while the others are off. Only when all

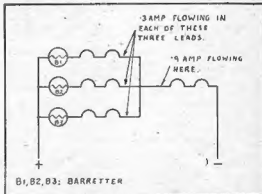


Figure 1—Theoretical Arrangement.

units are operating can the 807s, 6L6Gs be used of course. If only 2 units were on and the 6L6Gs allowed in circuit they (6L6Gs) would only have .6 amp. flowing through them. It is better therefore, to arrange that when any one unit is switched off it automatically shorts out the 6L6G, 807s. This is accomplished by using SPDT switches in all 3 units.

The result could also be achieved by using a single switch across the 6L6Gs and 807s and using ordinary single circuit switches in each unit. However, this arrangement is not recommended as through an oversight, this switch may be neglected to be closed, consequently the 6L6G, 807s may be operated at lower heater potential (while one unit is off) and the HT accidentally turned

(Continued on Page 21)

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RAMBLINGS ON THE DX BANDS

It seems that the notes for this month are practically non-existent due to the lack of interest by those of you who concentrate on the working of DX.

No doubt many of you have made your New Year Resolution to send along notes of your various doings on the DX bands, so we can look forward to good notes under this heading in the future.

Snow Harrison, VK3CN at Shepparton, sends us some very interesting dope and says that he was "QSO GSAVK a few days ago and he asked that I put a bar in 'Amateur Radio' to the effect that he used to be VK5RN and is now on the air as GSAVK. Frequency when I worked him was about 14165. Thought you might be able to incorporate the dope in your notes. Told him I would pass it along.

"Am always interested in your notes, being a DX fiend myself. However I am only on 14 Mc. and as you do not seem to be getting much dope on that band, here's some that may help other 14 Mc. band CW enthusiasts.

"Conditions have been patchy the last couple of weeks and not as good as they were a couple of months ago. However, there's still plenty of DX to be worked. Have worked the following during the past month as well as numbers of Europeans and sundry others: LZ1XCC on 14090 Kc., VS8AN 14130, FT4AE 14180, OQ5JF 14190, VQZGW 14060, HK3CX 14080, ET1JJ 14040, VQ3HJP 14120, EP3D 14180, EP1AL 14070, AC4YN 14130, ST2AM 14100, CN8BK 14120, XABU (Rhodes, Dodecanese) 14130, H1NS (Tripoli, North Africa) 14120, OA4O 14180; and the best of the stations I have been unable to raise are: HZ1AB 14080, TF3A 14130, EA9AI 14150, ZB1M 14190, FF8AA 14080, G5KW/HZ 14120, MACY (Sp. Morocco) 14130, and the following I didn't take a note of frequencies: VO6K, VO2G, ET3Y, VP4TB, VP3FC, VP9D, OQ5BR, VS8AA, W6VKV/16 (Eritrea), P1LL, Y1ZF.

"If anyone works EP3D and thinks they have a new country they will be disappointed as he is not in Iran. Had a letter from him and he says it is his old call and QTH Abadan, as he is waiting for a new call. However he is not far from there but doesn't want to run any risks of being caught so don't think we had better publish his QRA. Worked EP1AL the following morning so have my fingers crossed and hope he's dinkum, hi.

"The above frequencies are only approximate and refer to CW sigs only, fone I don't listen to IF I can help it. Let me know if you want any more dope on 14Mc. at

any time. Am only too willing to be of any help I can." (Can always use such interesting dope as this "Snow"—Editor.)

George Choules VK3AHB claims to be a participant in the first duplex telephony QSO on the 28 Mc. band. He says that "It may be of interest to you that on Monday 9th December, a duplex telephony QSO took place on 28 Mc. between G2CDI and myself. As far as we know, this is the first occasion on which true duplex has been worked between this country and England on 28 Mc. and we have therefore awarded ourselves the proverbial 'Putty Medal'. The details are as follows:—Time 1225 GMT till 1245 GMT (10.30 p.m. our time). Frequency: G2CDI on 28.588 Mc., VK3AHB on 28.036 Mc. Power input: G2CDI, 25 watts; VK3AHB, 100 watts. Antennae: G2CDI, three element beam plus 1 wave dipole for receiving; VK3AHB, four element beam plus 1 wave dipole for receiving.

"For the 20 minute duration of the duplex portion of the QSO the signals at each end were Q5 except for short periods of QSB. An interesting feature of this contact was the fact that at the moment when my signals were QSB, his were at good strength and vice-versa, indicating that the send and receive signal paths are not necessarily the same, probably due to different angles of incidence of the transmitted signals at the respective stations. In conclusion I wish to apologise in advance to any CW men who may have been inconvenienced by my signal in the CW portion of the band."

South Australia always sends us a short list of calls heard, which are apparently the choice ones. Signals heard on 14 Mc. included LZ1JJ, VS1BX, VU2BT, XE1AG, LUSHE, CIYCS, VU2EG, VU2AM, SMSOU, HCION, PK6HA, G3TK, OZ3NO, J9AAB, J9AAA, KA1SS, J8ADT, XUIYR, CX2AX, XZ2AA, EI3J, T120A, OZ7UW, VP4TR, HK1AG, G6QX, J5HRP, G8MX, W6AW/KH8, HCLJW, J2AAO, J3JNX, VSARM, T8QG. Conditions on 14 Mc. were poor all the month: while signals heard on 28 Mc. included OZ3J, OA4AK, OA4AL, G4AJ, G2XA, G3VR, ON4BKC, G3TT, XZ2YT, EI3J, G5XK, G5PX, LX1SI, I1PB, W6ONT (KW6), Z56IH, G3ADN, GM2FQG, W6BRR, W8ALB, W7DIZ (Iwo Jima), F3AT, VS1BJ, KH8FD, G4QB, G4JW, G2AMJ, VS1AE, G6WT, XZ2GP, VU2PG, G5CJ, PA0QJ, G4CY, G2AJ, VR8AP, PZ1A, and LA1F.

FIFTY AND UP

As already reported, the band first opened for Interstate work on Thursday, 5th December. The following night it was dead but on Saturday 7th, signals came through at good strength again and a number of contacts were made between VK3s and VK2s and VK4s. On Sunday 8th, nothing was heard but on Monday 9th, a number of VK4s were worked here between 5.30 p.m. and 9.30 p.m. During these three openings, many good contacts were made and it is not possible for all stations and logs to be given in detail. 3MJ, 3GG, 3HK, 3YS, 3EW, 3LS and 3NW all did well.

Since that time no contacts were made until 25th December, although on quite a number of occasions VK4s were heard in Melbourne, weakly but quite Q5. On 25th, 3MJ worked 4FB at 11.15 a.m.—the first evidence of middle of the day skip. Then on 27th December starting at approximately 10.30 a.m. conditions again became very good and excellent signals were heard from 4ZU, 2AZ, 2NO and 2AHF. Unfortunately not many stations were active here or in Sydney or Brisbane. Good contacts were made but signals faded about 11.30 a.m.

Stations so far contacted in Melbourne are VK2s: NO, LZ, AZ, AHF, WJ; VK4s: AW, ZU, HR, XG, FB and RY. There has been a sudden burst of QSLing between these stations—seldom if ever before has such keen interest been shown in Interstate QSL cards!

Reports have been going about that a number of VK2s and VK3s have been heard in New Zealand—and this appears quite definite now. However no details have reached me as yet. VK7CW reported hearing VK2NO and 2NP at good strength but unfortunately had no transmitter in operation to answer.

On Saturday 7th VK7TL was visiting 3MJ and took part in several very good Interstate contacts. "Doc" has returned to Hobart full of enthusiasm for 50 Mc. and we imagine, will stir up something in the "Apple Isle."

Letters received by 3HK and 3MJ from a listener in Bundaberg, Queensland, tell of signals received by him from 2NO, 2AHF, 2AZ and 4AW on Saturday 7th; 3MJ, 3BW, 3HK, 3NW. 2NO on Monday 9th (7-9 p.m.); 3HK and 3ABA on Friday 13th. The receiver is a 5 tube super. Of interest in this reporter's logging of 4AW 200 miles

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away. We wonder whether it is possibly line of sight conditions of ultra short skip for this frequency.

It is interesting to note that most of the VK2s and VK4s are using vertical antennas—some 2 element rotaries, but most just co-axial dipoles or ground plane types. As originally thought, little difference can be noted as far as the DX work is concerned although it would appear that stations here with 3 or 4 element beams are putting out stronger signals than the above mentioned VK2s and VK4s. Such beams also appear to give better reception.

One QSO of more than usual interest was between 3MJ and a VK4—the latter was operating portable with only 2 or 3 watts input and his sigs were R8:

A field day was held on Saturday, 21st December with the following stations taking part: 3NB at Mt. Dandenong, 3HK Mt. Donna Buang, 3YS Mt. Macedon, 3IV Mt. Bunngong, 3IZ Arthur's Seat, 3DH Frankston, 3NW Leonagatha. Melbourne stations operating were 3MJ and 3KU. Signals from 3IV were heard at Mt. Dandenong and elsewhere but no contacts were made and apparently Keith was having receiver trouble. He was heard later by 3HK but Keith called without success. 3IZ had one contact and burnt out his vibrator supply! He then returned to his home at Red Hill and worked 3MJ and 3HK. 3HK contacted 3YS, 3NW, 3NB, 3MJ, 3LR and 3IZ. 3YS contacted 3HK, 3NB, 3LR, 3MJ, 3KU and heard 3ABG on CW from Avenel. 3NW contacted 3YS, 3HK, 3NB and heard 3MJ at Q5 R3/4. The longest distance covered was 3YS-3NW, 105 miles with signals Q5 R6 both ends. Unfortunately 3BW and 3BU were not able to participate. Thanks must be made to 3DI of Leonagatha and his XYL for their hospitality and interest in the tests.

3IZ has at last got going and puts an R9 sig into Melbourne. He is very active and is heard most nights. No details of his rig as yet but he has a 3 or 4 element

beam functioning well. 3PK appeared using a portable outfit at Mornington. His signal in Melbourne is R8/9 and very nice quality but his modulation percentage was falling off during the course of each over. Colin has been a regular listener from his QTH in East Kew and when he returns from his holiday he will be on the air with his portable and later with a bigger rig. The portable consists of 6V6 triode xtal osc. tripling and 6V6 doubler with an 807 doubling in the final. Input is 4 watts modulated (plate) with a 6V6. His receiver employs a 954 RF and 954 Mixer.

3DH is now using a stabilised rig and his signal is good copy. Ivor had his transmitter in his car and on one occasion contacted 3MJ from a point about 200 yards away. Dave wondered why 3DH was so darn loud until things were explained!

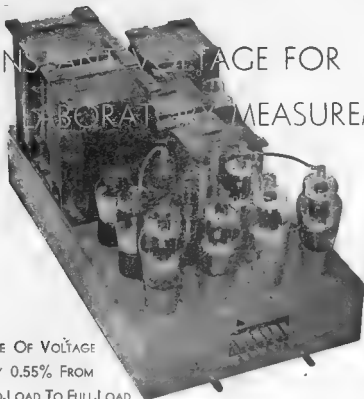
Others heard fairly regularly are 3YJ, now free from BCL QRM, but keeping his fingers crossed, 3GG now on holidays at Mornington, 3ZD still with a zepp antenna, 3QO, 3HK, 3YS-3ABA who worked cross-band duplex with the writer 3NW, the latter being on 166 Mc. and Fred on 50 Mc., 3BW fairly busy with junior op., 3LS, 3KU, 3BD getting converter going and 3AJH and 3LR.

Clarry, VK5KL up in Darwin, in a recent letter says: "Thought I would drop you a line on the doings up here as I read 'A.R.' and know how hard it is to get news. Being pre-war ex-5 meter man xtal controlled, I naturally have turned to 50 Mc. Have got going on 28 and 50 Mc. up here now. 50 Mc. rig is 5 stages, PP final, 100 watts, 3 element rotary beam, R/T or MCW, receiver is 954 RF, 954 Mixer, 955 Osc. converter into 10 tube super.

"My nearest station is VK3NR, Noel Roberts, at Katherine 180 miles away, and we hope to QSO shortly. I operate 50 Mc. tests. I am endeavouring to arrange schedules with all States and N.Z. in an effort to QSO

(Continued on Page 11)

CONSTANT VOLTAGE FOR LABORATORY MEASUREMENTS



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MANY testing processes require constant voltage to be applied to valves or other equipment during the time that the test is in progress. It is useless to have instruments correct within 1% or less if the voltage is going to vary while the current or other feature is being read.

This is particularly important in the testing of radio valves in which some of the characteristics are critically dependent upon the applied voltages. An example of this is the Characteristic Tester recently constructed in the Laboratory of Amalgamated Wireless Valve Co. Pty. Ltd. at Ashfield. This equipment is used for the checking of a percentage of all valves manufactured each day, to see that the accuracy of the factory testing is maintained, and to carry out other tests not normally applied to the whole production owing to their complexity.

The equipment uses an electronic voltage regulator on the plate, screen and grid supply voltages. The input is from the 240 volt A.C. mains, the output is variable in voltage from 0 to 300 volts with a maximum current of 200 mA. With the maximum output voltage, the percentage voltage drop is only 0.55% for a change of load from 0 to 200 mA.

The equipment uses Radiotron type 807 valves, four of which carry the current of 200 mA. between them. The 807 is probably the most satisfactory type of

valve for this purpose owing to its high current capability (72 mA. per valve maximum) and its high amplification factor. This is only one of many applications in which Radiotron type 807 may be used with every satisfaction



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As no list of VK9 stations appears in the official list of experimental stations, cards for VK9 have been held. The address of any station who can dispose of VK9 cards would be appreciated.

VR2UH, D. A. Leslie, Box 237, Suva, Fiji, intimates he is prepared to handle QSLs for VR2. He states that on 9th November, 1946, the only licensed Fiji stations were VR2AA, 2AB, 2AC, 2AD, 2AF, 2AG and 2AU. He is also desirous of contacting any VK resident in the Walgett district of N.S.W.

ZCIAR/ZC8, Palestine, writes to state that he is not a genuine ZC1 but is located in ZC8 where no licences were then issued. He is now licensed, as are other service Hams in Palestine. Frequencies allocated are 28, 56, and 112 Mc. with maximum input of 50 watts. Calls are four letters with no figures and commence with JX. At times of utilising the ZC1 call he was situated under cover near Jerusalem.

PK1VHN located in Batavia, Java, desires QSLs to be forwarded to him at his home QRA: W6VHN, Jim Houlahan, 11354 Biona Drive, Los Angeles, 34, Cal., U.S.A.

A card to hand from UA3AM has a nice pictorial representation of A. Popov, who UA3AM describes as "inventor of radio." The card came to hand via RSGB and a superscription probably added there and rightly too, reads "Sez You!"

PK1OKL, Batavia, Java, desires all wallpaper to go to his home address, Harry H. Ross, 1079 Marco Place, Venice, Calif., U.S.A.

A note from Mac VK3XZ, latterly of 3SR Shepparton, indicates big doings in the future but a postscript to the effect that all the big doings are contingent on completing the painting of his house, seems to push the big doings way down on the priority list. Mac is very enthusiastic about the November issue of Amateur Radio, especially the receiver featured in that issue and the article on I.F. frequencies.

Many thanks to the country hams who responded to the request in a recent issue for volunteers to distribute QSLs in provincial towns and cities.

Among the offers accepted are VK3BE for Ballarat, VK3EQ for Warrnambool, and VK3YV for Wangaratta.

VERON, the Netherlands Association in its August bulletin, puts out a plea for spare parts for PA Hams. Quoting the bulletin "Owing to the fact that all Tx and Rx have been stolen by the Germans it is difficult for many Hams to restart on the air as in our country radio parts are very scarce and transmitting parts practically not available." The bulletin also mentions that 20 pre-war members were "shot by the Nazis."

The Danish bulletin for September enthuses over the return to OZ Hams of a portion of the 3.5 Mc. band which has created much activity. A Ham Camp held on the island of Laeso (in the Kattegat) during the second week in July was attended by 40 OZ and SM Hams. Combined with other outdoor pursuits the camp operated a 50 watt station, OZ7EDR.

The QSL Manager takes the opportunity of wishing Interstate colleagues a prosperous 1947 and grateful thanks for the smooth and efficient functioning of the State Bureaux.

Early in 1947, the annual "burning off" at the VK3 Bureau is due to commence and all cards unclaimed will be vetted and those having lain at the Bureau for over 6 months will participate.

As from 20/1/47 the writer is relinquishing the position of Victorian QSL Manager after 15 years, due to the heavy increase in the volume of QSL traffic. Interstate QSL Managers should note the new address, in this col-

umn in February "Amateur Radio." Writer will continue to occupy the position of Federal QSL Manager.

Cards for stations in Japan should be sent to J4AAC, Major J. M. L. Drudge-Coates, Brindiv Signals, B.C.O.F., Japan.

A card from KA1ABA relating to a phone QSO on 28 Mc. is to hand. It does not bear the name of the addressee station or date of QSO. Owner please apply this Bureau.

Thayne S. Smuck, 154 Lynn Street, Seattle 9, Wash., U.S.A., writes requesting a contact with Australian philatelists or pen friends.

EDITORIAL.

as a model the Constitution of the Commonwealth of Australia, acknowledged by those whose job it is to know as the best of its kind in the world.

We who comprise the Federal Executive (there is no "F.H.Q.") are justly proud of the honour conferred upon us by virtue of having been chosen for the task, at the same time we are not unmindful of the responsibility involved. We ask you in turn always to remember that should you feel that we have failed to obey your wishes you have the right to propose our removal.

Let those who prattle of "the F.H.Q. system" paste this on their soap boxes.

A.H.C.

FIFTY AND UP.

Worked ZL1HY on 28 Mc. and he says that ZL1AO runs tests towards VK on 50 Mc. each Sunday at midday N.Z. time, and there is great interest in 50 Mc. in New Zealand.

"VK4P" reports great doings in VK4 and his rig should be ready anyday now and then we will be running a sked also. VK3GG QSO here on 28 Mc. favours around midday times and I have arranged to QSO on 28 Mc. at 1045 EST each Sunday then 3GG transmits on 50 Mc. 11 to 1130, SKL transmits 1130 to 1200, then if nil report back on 28 Mc. Here on 28 Mc. most evenings VK3 rise to R9 and I feel that something may occur, during those times. All interested in skeds, etc., please QSO me on 28 Mc. or write to me: VK5KL, C. N. Castle, c/o. Dept. Civil Aviation, Darwin.

"ZL1HY has sent to 'Break In' that I will be on between midday and 1 p.m. N.Z. time and as this is about same time as skeds with VK3 and in same direction here's hoping something will happen this summer. When 50 Mc. opens I'll be in booting so 73 for now and see you on 50 Mc."

The VHF Section of the W.I.A. (S.A. Division) will soon, we hope, be an actual reality. Embryonic portions have met at a variety of places and times, a popular spot being the windmill in Prospect, each Saturday at 5 p.m. 5RT and 5QR claim to be foundation members there, but 5GB, 5JD, 5RQ and 5KC have been welcomed. Much animated discussion takes place in spite of a variety of QRM and the QTR bug.

50 Mc. has temporarily (we hope) suffered a total eclipse in VK5. Historians of the section tell us that 5BQ was the last of the original tribe, and after talking to himself for some weeks, finally ordered a new logbook printed for 14 Mc!

The Hams "talking" 50 Mc. are many, and with recent developments in the Eastern States, indications are that at least some of the gang in VK5 will use adequate equipment, in the form of beams, superhets, and QRO C.C. rigs, in an endeavour to contact the other States.

Most activity occurs on 166-179 Mc. where cross town rag chews are fairly common, 5RQ and 5KC can be

heard by the half day, testing and talking! 5RT and 5QR are regularly engaged each Sunday night in their weekly chess struggle.

5GB can use either C.C. or a self excited type 210 on 50 Mc. A pair of 7193s in P-P using a variety of antennas including one leg of zepp feeders, takes care of 166 Mc. transmissions. Rx usual superregen. and audio. Some of George's "tests" have the gang worried at times. 5RQ—Using a single 7193 with coil and condenser tank on 166 Mc. With single wire antenna, Claude puts out FB signals. Rx is 855-8F6. An RF stage for the fix is on the New Year building programme! At present no 50 Mc. equipment. 5KZ—Partner in crime to 5RQ. Using two transmitters on 166 Mc. 6J6 with plate lines, and a semi-portable rig using 7193 coil and condenser tank osc. modulated by single 6V6. Antennas are a folded dipole and a double extended zepp. Open wire feed lines are used. The Rx is usual superregen and audio. Also planning an RF stage. 5KC—Has not been active on 166 Mc. for some time. Has a 4 stage C.C. portable on 50 Mc. and the 186 Mc. transmitter is an RK34 with plate lines. Rx is 2 tube superregen, 0002 as osc. Ken is QRL, study and rebuilding. 5JD—Is making valiant efforts to establish reliable contacts across the city. His next effort will include a rotary beam and a 50 ft. dipole. Equipment: 7193 on 166 Mc. and usual superregen. Rx. 5GF—Active on 166 Mc. and 50 Mc. and is using a transceiver with 7193. Puts out a very well-modulated signal. Intends to use a 50 Mc. rig in a trip across the Gulf during Xmas vacation. 5JU, 5BQ, 5CR, 5MD, 5HN, and 5GM have been heard on 50 Mc. many moons ago. 5RT can use C.C. on 50 Mc. using RK20 as a doubler. Pair 7193s with plate and filament lines, and open wire fed double extended zepp on 166 Mc. Rx is 7193 and audio. 5QR—807-807-832 C.C. on 50 Mc. or uses 813 as doubler. RK34 with plate lines

FEDERAL HEADQUARTERS.

Federal Executive wish to extend to all Divisions and members, greetings for the New Year of 1947 and to thank them for their help and support during the momentous year of 1946. Federal Executive for its part, will continue to apply itself to the task of improving the operating facilities of amateurs and furthering the affairs of the Wireless Institute of Australia as the meeting place of the Australian Amateur.

In spite of some criticism, which has come from various uninformed quarters, much has been achieved in 1946 for the re-establishment of the amateur way. Many frequencies have been allocated for amateur use, operating facilities have been extended, some of which did not exist before the war. The P.M.G. Department in Melbourne has shown itself to be most friendly and helpful towards the Australian Amateur, and Federal Executive attribute this to the cordial feeling which has continued between the Institute and the Department over many years.

Much work was done in holding a DX contest, in preparing a constitution for the Federal body of the Institute (which is not yet completed), in re-starting the QSL Bureau, and many other duties.

The Federal Executive will exert itself in this new year, towards the completion of the work it set out to do, in obtaining all facilities possible for the amateur and co-ordinating the domestic affairs of the Wireless Institute.

running 16 watts on 166 Mc. Antennas are open wire fed folded dipole, and co-axial fed J. Rx is 855 osc. 6V6 audio. Seriously thinking of QRO on 50 Mc. complete with beam and superhet.

Congratulations !

To the boys who broke through on 6 metres. More DX to them. We expect the EDDYSTONE components to break through to the Australian market about mid January. They are worth waiting for. Remember the Distributors:—

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DIVISIONAL NOTES

NEW SOUTH WALES

Secretary: Peter H. Adams, VK2JX,

Box 1734 G.P.O. Sydney.

Meeting Place: Science House, Gloucester and Essex Streets.

Meeting Night: Fourth Friday of each month.

NEWCASTLE ZONE

2FP has been doing consistently good work on 28 Mc since erecting a new 48 feet tower for the three element rotary. With four tons of concrete in the base the tower is a very solid job. A platform at the top allows him to make any adjustments. ——— Dave of 2B2 was in hospital but is OK now. Before his illness he poked some 50 Mc. signals down to 20C at Wyong. The local gang are glad to know you are well again; it was noted however that some of the locals have been able to work lots of DX during your absence. ——— 2ZC is testing and not so active after putting up a good score during the VK DX test. ——— ZAHA also taking things easy since the contest but has been heard on 14 Mc. fone ——— 2AGD, George, rebuilding and not on often. ——— 2CS still building and was advised by one of the senior service boys to put away the pencil and get out the soldering iron. ——— 2AMM very active on 7 Mc. fone—good work too. ——— 2XQ inactive except to eliminate the haywire from the tx. ——— We should be welcoming some new Hams into the Zone, at least three have received tickets.

SOUTHERN ZONE

It is a pleasure to take up the pen and once again write some notes for this Zone. I would like to take the opportunity of asking for the co-operation of the gang down our way, whom I have not contacted by sending along dope on his rig and activities for inclusion in this column. Send it along early each month so we will have the latest. 2GC has been working on 14 Mc. 6V6 and 807; antenna end fed. Jim's main interest at the moment is building a caravan for Xmas vacation. Guess the rig will be included. ——— 2QD now located at Wymah, Upper Murray. Uses a No. 11 set on 7 Mc.—main problem a heavy chirp. Hilton has plenty of room for a good antenna now. ——— 2EU has been heard on 7 Mc. fone with good quality. Antenna is low and temporary. ——— 2QJ very QRL, not very active, and a wooden tower for the rotary is under way. Rig is 6L6 triet, 802, 801, 100TH and class B modulators. ——— 2APW will be heard on 7 Mc. soon. 6L6 triet and 807 and a nice power pack with a receiver under way completes the gear.

BLUE MOUNTAINS

2LZ reached the zenith when he contacted Interstate stations in the recent band opening on 50 Mc. Con has had power leak and loses lots of contacts through it. ——— 2AFO quite active on 50 Mc. and 168 Mc., works back to Sydney quite a lot. ——— 2HZ does the Sunday 2WI broadcast—gets out sometimes

VICTORIA

Secretary: R. A. C. Anderson, VK3WY,

Box 2611 W, G.P.O., Melbourne.

Meeting Night: First Wednesday of each Month.

Meeting Place: Melbourne Technical School.

CONDITIONS GOVERNING LOAN OF TEXT BOOKS, TECHNICAL PUBLICATIONS AND INSTRUMENTS

The Technical Advisory Committee of the Victorian Division administers both Textbook and Instrument Libraries. Every effort is being made to bring both very much up to date, and the T.A.C. proposes to publish for the information of members a list of the contents of each library, in the meantime we feel that it is quite possible many new members do not realise that such libraries even exist, or know the conditions governing loans, for their information the conditions are published hereunder.

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- 7—Country Members.—Treat as registered book.
- 8—Limitation.—Number of instruments available to a member at the same time to be at the discretion of the librarian.

Next month we hope to present for your information a list of library contents. When in doubt about books get in touch with Jack Groves. If instruments is the subject of query Reg Jepson is the man. Somewhat irrelevant, but never-the-less important, Reg Bush (VK3LS) has been appointed organiser of Bush Fire Auxiliary with Harold Webber in charge of technical equipment. Reg can be contacted at FU 3619.

QUEENSLAND

Secretary: C. Marley, VK4CJ,
Box 638 J. G.P.O., Brisbane.

Meeting Place: State Service Building, Elizabeth St., City.

Meeting Night: First Friday of each month.

At the October general meeting we were glad to welcome visitor Cliff Gold, 4CG from Toowoomba. Discussion took place on the eternal question of splitting the bands for phone and CW. Various suggestions were made as to what the sub-divisions should be, one member suggesting that in the case of 20 meters, 14000-14100 be for CW, 14100-14200 for phone, and the rest free for all. The problem is of course that it is difficult to avoid a "dead spot" caused by the American phone band, but in any case we would be pleased to hear what the views of country members are on this question.

Discussion also took place re the projected Xmas Party and it was decided to hold same on the 13th December. The function took place on Friday, 13th December, and resolved into a solid rag-chew, which finished in my case about thirty minutes past midnight. We were very pleased to have along as our guest Mr. Conry, the Chief Radio Inspector, and to judge by the lengthy chinwag

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between 4FB and that gentleman we think that Fred must have been requesting a band for his own personal use. Some twenty six members did full justice to the refreshments provided, particularly those of the liquid variety.

Frank Shannon passed along some dope from country members regarding the kind of notes they would like to see in "A.R." Firstly, we don't think that the practice of recording the names of members attending general meetings in "A.R." would serve any useful purpose. The space in "A.R." could be used to better advantage I am sure, and in any case it has always been the practice to record any visitors who might drop in. The list of attendance would otherwise be a constant repetition of the names of about twenty regulars. We did decide however that it would be a good idea to provide an attendance book so that those members present can record their signatures for posterity. Regarding station descriptions, the opinion has been expressed that they hark back to a decade or so ago, but if some want them we can feature a few, so if country members want to be "featured," it's up to them to furnish the dope.

The lecture which was to have been given by VK4FN had to be held over owing to the absence of that gentleman. Congratulations are due this month to VK4s JP and HU. George has acquired a junior op, while George (HU) has acquired twin girls. HU evidently believes in push-pull operation, whilst JP favours the single ended technique. Congrat. OMs

It was decided to form a VHF Section of the Institute, particularly since interest in country men appears to be on the increase. 4ZU was appointed to organise same, and look after the VHF end of the business generally. We are glad to see healthy signs of interest in the Ipswich gang and hope soon to see 'em on 50 Mc

In view of more recent happenings, or should one say "Phenomena," it seems a trifle absurd to go into any great detail about the "Field Day" held by the Queensland VHF gang on Sunday, 16th November. However to keep things in their proper perspective a description is essential, so here goes.

Although I have credited the local gang with credit for the event it should really go to 4XG, who on the day mentioned, sallied forth with his 50 Mc. gear and set up shop on the Maleny Range about 60 odd miles from Brisbane. 4ZU was listening at Cape Moreton, 30 miles from Maleny, and about 40 from Brisbane, while the rest of the boys were on the job in Brisbane. Gordon 4XG succeeded in putting an S9 signal into Brisbane, as did most of the locals into Maleny. 4RY, 4AW, 4HR and 4FB were the Brisbane stations involved and it was generally regretted that the test had not been over a greater distance. 4XG's signal was heard at S9 at Cape Moreton by 4ZU, but the locals only managed to put comparatively weak signals over the hills, etc. in the intervening distance, showing that the line of sight from Cape Moreton helped materially.

As everybody knows by now, line of sight went by the well known plank on Saturday, 30th November, when 4ZU's 50 Mc. signal was heard by 3HK and 3PK. After the incredible information had been passed on to 4ZU by 4FE via 3YS (thanks OMs) skeds were arranged for that afternoon (1st Dec.), but nothing transpired. On Thursday, 5th December, 4HR achieved the great honour of being the first VK4 to work DX, namely VK3. As Tibby is probably Queensland's outstanding DX man (83 countries since the war) he should be very well pleased. Our congrats. Tibby.

Like wolves in for the kill, 4AW, 4RY, 4FB, 4XG and 4ZU swooped on to the band and proceeded to lap up the DX so fruitfully abundant. Amongst the VK3s work-

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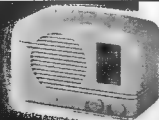
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ed were 3NW, 3HK, 3GG, 3MJ and probably others. It was a hectic night and one that will live long in the memory of those few kindred spirits who inhabit 50 Mc.

Then on Saturday, 7th December, 4AW, long a keen exponent of the higher frequencies, reaped the reward of his labours, being the first VK4 to QSO VK2. The VK2 in question was Don, 2NO, so the event was surely a pleasant one. 4FB and 4ZU heard 2NO but no contact was made, although 4AW, to do the job properly also worked 2WJ and 2AZ. The VK3s started to roll in by this time and the gang did full justice to them. 4FB's performance in all this activity was greatly hampered by his receiver being a superregen. (2 tubes), and it did not appreciate the QRM from the locals. A Converter has since been completed however so Fred should have no further trouble from this score.

Again on the 9th December, the band again opened up and 4AW and 4ZU had several QSOs with VK2, namely 2NO, 2ABC, 2WJ and 2AZ, although 2NO once again eluded 4ZU. 2JU was also heard by 4AW and vice-versa, but a QSO did not really take place. The VK3s were also coming in during these interesting proceedings and in my opinion this was their best night yet, as far as reception here was concerned. 3MJ, 3HK, 3KK, 3YJ, 3LS and 3NW were heard and mostly worked here at 4ZU, and 4AW earlier had his hand in the pie. 4XG and 4FB were a little unfortunate in that they left it a little late in adjourning to their shacks. 4AP who had made his debut on the band on the previous day, also had some of the DX come his way, and 4HR on holidays at Caloundra, 60 miles North of Brisbane, succeeded in working 3HK on his portable.

That apparently is the finale for the time being, but, it's happened once, it can happen again. The propagation people here in Brisbane could throw no light on the mystery (how we've always had a weakness for mystery!) and Mr. Stromel were of little more help, the only advice being that the M.U.F. for the occasion was about 10 Mc. which shows that those signals must have had quite a "walk-about" before finally hitting Brisbane. Likewise the reason for VK2s and VK3s being heard together is rather intriguing.

SOUTH AUSTRALIA

Secretary: E. A. Barbier, VK5MD,
Box 1234 K, G.P.O., Adelaide.

Meeting Place: 17 Waymouth Street, Adelaide.

Meeting Night: Second Tuesday of each month.

The W.I.A. and I.R.E. in VK5 combined to hold their Xmas Social in the Arcadia Cafe on Tuesday, 10th December, at 8 p.m. The guests of honour included Mr. H. R. Pinkerton (Radio Federation of S.A.), Messrs. J. de Cure, P. Traynor, C. Pike, L. Thomson and McGee (P.M.G. Radio Inspectors), F. W. Tideman (Electricity Trust of S.A.), George Barber (Chief Engineer SDN), and Colin Howie (Chief Engineer 5KA). Professor Kerr Grant was the guest speaker and his interesting and informative talk "Rays" was thoroughly enjoyed by a gathering of over 150 members of both organisations. Mr. Don Gooding (Chief Engineer 5AD and Chairman of the I.R.E.) proposed the toast of "The Founders of Radio" in which he quickly sketched the growth of Radio from early days until the present era. One particular point stressed by Mr. Gooding was that radio men, both amateur and professional, had always endeavoured to pass on any information or knowledge for the benefit of the coming generation. In stressing this point Mr. Gooding unconsciously was expressing one of the strong points in the amateurs' code and whilst Mr. Gooding was primarily an I.R.E. speechmaker, he thus was giving the W.I.A. the vote. Mr. R. Brisbane stepped into the breach and on behalf of the I.R.E. welcomed the members of the W.I.A. This left the W.I.A. two up and when Mr. I. Thomas (5IT) returned thanks to the I.R.E. on behalf

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of the W.I.A. we were in an unbeaten position. Mr. "Doc" Barbier (5MD) deciding to clinch the victory, delivered telling blows when he welcomed the visitors. He led a somewhat doubtful punch when he included the I.R.E. members as victors, but as the I.R.E. were now out on their feet nothing really mattered. Mr. F. W. Tideman responding on behalf of the visitors plugged one for us when he said that but for fate he might have been an amateur sitting at the ordinary tables and knowing a lot about radio, instead of knowing nothing and being at the guest table. Mr. W. Bland (vice-chairman of the I.R.E.), speaking on a vote of thanks to the guest speaker, was all set to stage a grand recovery for the I.R.E. but we brought on the "cuts" at the psychological moment, and the I.R.E. threw in the towel. Altogether a well organised and decisive victory in favour of the W.I.A.

Joking aside the gathering was a huge success and reflected great credit on those responsible for the organ-

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ising, and is something that can stand repeating. Mr. Cyril Talbot, ventriloquist and entertainer, enlivened the proceedings and aside from one or two decidedly "blue" jokes (which by the way seemed to amuse both I.B.E. and W.I.A. members in equal amounts), his act was "top." With the hour growing late everybody voted the social as being 100 per cent. and a general exodus took place. When I left, the W.I.A. contingent were holding an unofficial meeting on the footpath of King William Street, and for all I know it is still going on.

5FQ is in the process of rebuilding and the air seems quite empty without him. He is almost as consistent as 5J5, almost. 5GM is putting a good signal out on 14 Mc. mostly working VK2 sigs, how's DX Ron? An indication as to how the various frequencies have been in VK5 may be had from the fact that 5J5 has been inaudible for quite long periods at times and that's saying something! 5GP has been heard with a good signal working on 14 Mc with 5RL. Both being ex-merchant radio officers gives them a lot in common. 5JU heard on 14 Mc quite often lately but sounds like DX to me; how are you seeing them "Huck"? 5KC was heard making enquiries concerning the installation of a telephone at his QRA, needless to say nothing doing.

5KG has a habit of going W.A.C. on Sundays on 28 Mc and usually times it around 10 hours or so; what about W.B.E. Bert. 5IT unobtrusively slipped a W.A.C. in on a Sunday when all good Hams were at Church, Sunday School or something; mostly something! 5LO has been active on 14 Mc. judging by the number of stations calling him, but so far I have not heard him. 5RR heard on 7 Mc with the Institute news every Sunday at 10 a.m., and is doing a real good job. This type of broadcast could easily be put over in the wrong way, but Reg is doing a 100 per cent. job and will welcome any news or dope you may care to send him. 5SP has a vertical mast that is the envy of all and sundry, but can say if it is radiating as yet. 5TV has been heard on CW and

phone on 14 Mc.; an ex-VK3 at present domiciled at Henley Beach, he votes VK5 a good spot; of course all the best Hams live at Henley Beach; naughty! naughty! 5WK consistent on 28 Mc., seems to be working all the available DX and I have it on good authority that his voice on the air is in the "Swoonatra" class, attaboy Nobby! Heard 5BQ calling CQ one Sunday afternoon accompanied "Forte" by his young hopeful; BQ led by a short head until just approaching the close of the CQ. when he broke down completely and left the lead in the undisputed lungs of "It," is "it" a boy or girl OM? JBC has been on annual holidays and regaled us with tales of DX heard up at Springcourt fully on the Murray where he is resident in charge of the local BC station, if all he says is true, about DX, it is a wonder the locals ever get any programmes.

One of the highlights of the recent visit to the radio section at the School of Mines was 5DC calling CQ DX on a small transmitter whilst a gang were tuning a receiver on the other side of the partition trying to pick up his elusive DX station, believe it or not 5JS was heard on the same receiver. We thinks I heard 5HN working with 5RR the other Sunday on 7 Mc.; strangely enough he was fading to me and I was not sure. At time of writing Mayo Richards, 5WR, is an inmate of Flinders Ward in the Royal Adelaide Hospital; trust all is well now Mayo. Heard 5JT working traffic early one morning last week; there's no doubt about Joe, he has the traffic handling game down to a fine art. Was making a rough check the other day as to the number of Hams whose vocation is broadcasting in VK5; almost without exception all the technical staffs are Hams from the Chief Engineers down to the relay boys (pardon me Wykeham) and to think that these Hams work at it all day and then go home and play at it best part of the night, this amateur radio must have something. Some weird and wonderful substitutes for frequency meters were tried on during the recent inspection of Ham shacks by the R.I. in VK5. The looks of injured innocence on some of the Hams when the obvious disadvantages of these frequency meters were pointed out would have melted even the stoniest hearted R.I.

TASMANIA

Secretary: J. Brown, VK7BJ,

12 Thirza Street, New Town. Phone W 1325.

Meeting place, Photographic Society's Rooms,
162 Liverpool Street, Hobart.

Meeting Night: First Wednesday of each month.

Council meeting for November was held at residence of 7PA, 12 Amy Street, Moonah, on the evening of the 22nd. Present were 7LJ, 7BJ, 7CJ, 7CT, 7RF and 7PA. Apology from 7CW. Minutes of previous meeting read and confirmed. Correspondence read and confirmed. Five membership proposals were received and passed on for confirmation at the next general meeting. Much adverse criticism was levelled at the time at which the recent contest ended, 3 a.m. was considered as out of the question for men who had to go to work the same morning. The inter-divisional discussion of divisional matters of a general nature was favourably commented upon, it being contended that this helps to air matters liable to affect our organisation generally. After some general chatter the meeting dispersed.

The general meeting was held as usual on 4/12/46, those present being 7LJ in chair, 7BJ, 7CJ, 7ML, 7DH, 7DW, 7YY, 7CT, 7CW, 7GR, 7OM, 7LL, 7AL, Messrs. Fulton and friend, Koglin, Nichols, L. Durkin, R. Harris, N. Lipscombe. Apologies from 7XA, 7AH and 7PA. Minutes of previous meeting were read and confirmed. Correspondence inward.—F.H.Q. re regulations, etc., circular from VK6. Outward to F.H.Q. re first division of revised constitution. New members P Wetherell (7PW Launce-

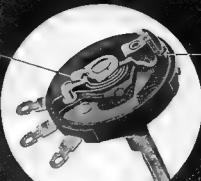
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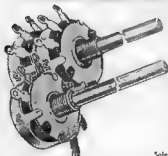


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MAGAZINE CHANGE

Beginning with the March issue of "Amateur Radio" some changes will be made in the layout of the magazine. Instead of a page having two columns it will in future have three. From that date the deadline for copy of notes, etc., for inclusion in the following month's magazine will be moved forward to the 15th of the month. Copy arriving after that date will not be considered. It is only by taking this step that makes it possible for production of the magazine by the 1st of each month.

VE8MJ

This station is located at a Hudson Bay Post on Baffin Island and enjoys one delivery and collection of mail per year. He has been using a 6L7 oscillator to drive a single 6L6. The aerial was a half wave centre feed, and the power supply consists of a vibrator pack giving 300 volts at 100 Ma. The annual supply ship has delivered some new gear and should be now better equipped.

ENGLISH AMATEURS

As from November 6, 1946, English Amateurs were authorised to use the remainder of the 7 Mc. and 14 Mc bands. The W/T Board had informed the RSGB that they were prepared to release these frequencies as early as the 1st of November, but other Governments had not signified their agreement. On November 1st the U.S. Government through the F.C.C. issued an order authorising the release of the remainder of these bands.

It would seem that the U.S. Government, after rejecting the W/T Board suggestion, and thereby causing other administrations to follow suit, suddenly changed its mind without notifying other Governments.

W.I.A. BROADCASTS

VK3WI appeared on the 7 Mc. band on Sunday, 5th January, with the first official bi-weekly broadcast of news of interest to the Institute member and also to Hams generally. It is the intention to give these broadcasts twice a week, on Sunday morning at 1130 hours EST and to repeat the broadcast on Tuesday night at 2030 hours EST. The frequency for the present is 7180 Kc.

It is known that VK3WI has in the past broadcast at 1100 hours and will continue to do so. The Editor is unaware of a definite fixed frequency.

The South Australian Division has commenced a regular broadcast which originates from VK3RR on the 7 Mc. band on Sunday mornings at 1900 hours South Australian time.

All Divisions would welcome reports, suggestions and items of news for inclusion in these broadcasts.

ton), Manning (7LR), Oliver (7JO), country members R. Harrix and Croswell associate members were elected unanimously.

After general business concluded 7LJ took the floor (literally) with a somewhat unusual lecture subject outside the usual Ham Radio topics, but none the less interesting, that of Chromosomes and Genes as relating to animal and plant life in general and also the human being. This lecture was done in Lon's usual thorough way, it was supported with stills on film (slides de luxe). I don't propose to enlarge on the subject here but it was well received and 7LJ got a very cordial reception for his effort. For those who don't know, 7LJ delves into photography and cinematography in his leisure moments.

The field day held on 24/11/46 was a great success and a detailed history of the day is compiled under a separate heading by 7YY who was present and gives first hand information. ——— Loose sand can be heavy going as 7CJ found on the field day when he struggled two 6 volt 13 plate accumulators, one in each hand, through it. Have to empty your boots Alan? ——— Some doubt existed as to what 7LL was going to do when he got to the water's edge on the beach in his search on field day, it was thought he wished his car was a "duck" for a start but much relief was felt when he changed his course after some meditation. ——— 7CW has equipment ready for 50 Mc and reports having heard VK2 quite strongly, possibly he will have made a few contacts e'er these notes appear. ——— 7LJ says he contacted 7IL (King Island) recently on 7 Mc. and his signals were romping in here in V.I.H. Lon also reports traffic skeds operating FB but not a great amount of traffic to date.

VK7 membership is now past the 50 mark with 46 full members and still mounting.

SOUTHERN VK7 FIELD DAY

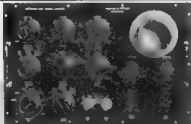
Perfect weather and high spirits provided the main essentials of a good field day on Sunday 24th, when fourteen cars set off from the Customs House, armed with everything from supers to one-lungers, on the trail of 7BJ and 7CJ who, with Mrs. BJ and offspring, had taken a No. 22 set somewhere "within 15 miles radius of Hobart."

First stop for most of us was the Domain, where the big question became "which side of the Derwent, and where's his signal, anyway?" Good solid broadcast harmonics, a sizzle from the tramway workshops and then a whisper from the great beyond—"Test de VK7W!"—7CT's windscreen wiper driven disc saving Joe a spot of work. The minimum was there all right—some 30 degrees of it!—sense said over the river, so a tight procession headed for the bridge, with CW out in front sporting an aircraft loop up on top of the Willys.

We rather lost sight of the field after CW shot off towards Cambridge aerodrome, followed shortly by 7AL, but after a good feed of CT's dust around back roads, a cocked hat of sorts was obtained over Seven Mile Bench, a few miles short of which we passed LJ and TR gazing through a copper-shielded loop. Once down there, we appeared to be in sole possession of a beach, an R9 signal and a nice bearing out over the ocean. Having left the Asdic gear at home, we retired up the road to beat around in someone's apple trees and had a grandstand view of them all coming in to find the transmitter a short distance up the beach.

7DH, with Mr. and Mrs. Barney Watson aboard, was first there. They brought along the station receiver, for which power was provided by a 12 volt battery driving an inverter. After a preliminary cruise around Hobart, they had made good time to 7-Mile Beach and came in on the "R" meter. 7CW, with Mesdames Walch and

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Harmonic, still found time to be second after burning up the country between Cambridge and Bellerive. Crosby was getting warm at the stage where he stood up on the running board and asked someone if he'd seen a radio transmitter, but was not high enough to see it at the other chap's feet! 7BJ had thoughtfully hung up an aerial of thin enamelled wire. Then came LJ and TR, with Mrs. Jensen and family. When they found BJ's car and realised they were not home yet, TR galloped in through the bush carrying the receiver. TAL turned up next with Mrs. Allen, small daughter and Miss Leverton, having had the back luck to cruise past earlier with his receiver on the blink. By this time, the 7CT-YY party, complete with families and local mariner Fred Saunders, ship's compass, parallel rules and the kitchen sink, had dried their boots and returned to come in fifth. Doc Kelly 7LL was then observed, with Mr. and Mrs. Lyn Brown, down at the water's edge, cooling off after their record-breaking trip up Mount Runney. Getting on towards 1 p.m., 7GR appeared, after having investigated a "fix" at Fern Tree on the other side of Hobart (you nearly had company there, anyway, sport), and then came 7JH and 7OM with P. Hooker.

At 1 o'clock, those still out opened their envelopes and came on in. They were Charlie Oldham and J. Murray, whose miniature super was a centre of interest; N. Lipscombe, L. Durkin and R. Allanby; T. Moore, Mrs. Moore and Mr. Crosswell; R. Fulton, Mrs. Fulton, Mr. and Mrs. Millen and families, who had combined forces with 7AC; Bill Nicholas, with Mesdames Nicholas and family and Miss Finnegan.

Prizes were donated by Crosby 7CW, Ray Conrad 7TR and Mr. F. W. Medhurst.

After lunch there was a get-together of distinctly pre-war favour. Post-mortems indicated that there would be more shielded loops in evidence next time, since the trouble of threading a few turns through a length of tubing seems to be well repaid in results. The automatic calsign band on the transmitter was useful, too, but the inclusion of a good long dash in each revolution would be helpful in the early stages when signals are weak. In any case, it was an enjoyable show and indications are all for another run some time this summer—T.Y.

D.C. FILAMENT SUPPLY.

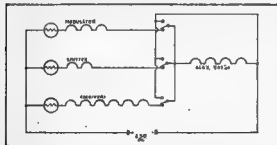
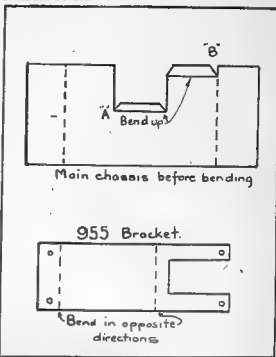


Figure 2—A Practical Example.

on, which procedure is not the best for valves having a coated cathode.

In the circuit it is assumed that all valves in the modulator, transmitter, and receiver, other than the 6L6Gs and 807s, draw 3 amp. heater current. This can fairly easily be arranged as the most common American receiving valves, other than power pentodes and rectifiers, draw 3 amp. For the oscillator in the transmitter and the output pentode in the receiver, it is suggested that valves of the 25L6 or 43 class be used. These both draw 3 amp. and fit into our arrangement very well. By use of the arrangement described above, a transmitter using push-pull 807s in the RF portion and 6L6Gs in the modulator can be used, these giving to the DC town Ham a transmitter with reasonable power, economy and using tubes of a modern variety.

JUNKBOX TO 166.



FROM JUNKBOX TO 166 MEGS.

brackets at either end. The brackets are 6 by 4 inches with a 1/2 inch flange along two edges.

Referring to the diagram, flange "A" carries the piece of two by two polystyrene which in turn supports the tuning condenser. Flange "B" serves as a guide for the perspex arm on which is mounted the antenna coil.

The tuning condenser is mounted base up, above the square hole. Having the base three inches above the chassis and four inches from the front panel permits the coil to be mounted with very short leads, well clear of any earthed object.

The 955 mounting bracket is just under three inches high. This brings the socket on level with the condenser. The plate lug of the socket is soldered directly to a stator and one end of the coil. There is thus an absolute minimum of plate lead.

The grid condenser is of the midge type, one lug being placed under a stator mounting nut and the other soldered to the grid lug of the socket.

The antenna coupling assembly consists of a metal rod with insulated bearings at front and rear of chassis. About one inch from the rear of this shaft, a 1/8-inch hole is drilled and tapped. Next a piece of perspex, 6 inches by 1/2-inch is warmed up until a half inch "foot" can be bent. Through the foot drill a hole and mount, vertically on the shaft. The antenna coil is mounted in a suitable position at the top of the perspex strip.

TERRIFIC TWO WATER.

minimum of controls on the front panel. The transmitter has only one control—the final plate tank tuning, the previous stages are tuned with trimmers and are set at time of calibration. This prevents any possibility of frequency shift due to air condensers being jarred in transit. The receiver has three controls—tuning, regeneration, and AF gain. The send-receive switch is the low capacity tele-

phone type but a Yaxley type wave change switch would be quite suitable but requires more space. The final amplifier in the transmitter was found to be unstable when operated as a straight frequency amplifier on 28 Mc. so it was neutralised. When changed to 7 Mc. the neutralising set-up was left untouched although it may not be necessary on that frequency.

The antenna used in this set-up is usually a doubler because of its simplicity of feeding. A Zepp is rather impracticable due to varying feeder lengths and tuning requirements. The antenna here at Geelong consists of a doubler made from single 18 gauge power wire and "Nyllex" twisted pair feed which, by the way, has quite good RF properties. The antenna is carried around with the unit and slung up wherever space permits. At the present "installation" the RF power entering the feeders is approximately 0.75 watt and signal reports from Melbourne have been up to R8 so that it is interesting indeed to see what low power will do.

The social aspect of these portable activities is very pleasing and some very good friends have been made in many country areas. In concluding let it be said to the country lads that if they see one of these vehicles in their town that there is possibly a potential source of QRM aboard from the "Terrific Two Water."

BROADCAST INTERFERENCE.

the telephone department and should be referred to the Radio Inspector for further action. The remedy for this form of interference is to fit a 0.1 mfd. paper condenser across the transmitter (microphone). This should be fitted as close as possible to the unit but must be done by the P.M.G.'s. officers and must on no account be attempted by the amateur.

Details of RF Chokes in Figures 1 and 5:—
RFC1 = 20 turns on 1/4-inch diam. tubing (close wound).
RFC2 = 20-40 turns on 1/4-in. diam. tubing (close wound).

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WHAT IT IS AND WHAT IT DOES

The comparatively new science of electronics is destined to become a powerful servant of mankind. Its applications to industry and to everyday living are almost limitless, and it may safely be said that the marvels it accomplishes today will seem utterly commonplace tomorrow.

Our purpose here is to strip electronics of some of its mystery—to explain what it is and what it does; in short, to show its relation to your personal life and the influence it will have on future living conditions.

SOUND REPRODUCTION

The range from below 80 up to 16,000 cycles per second in the electromagnetic "spectrum" covers the field of audible sound reproduction. A microphone picks up your voice and converts it into small electron currents, which are amplified by electronic tubes. These tubes go, and only a small electric variation on their control grid is needed to produce amplified power instantly. Compare this action to the foot pressure on the accelerator of a car and its result.

Amplified speech can be carved mechanically on a wax plate or, by electromagnetic induction, "frozen" into the atoms of a steel wire. These are the principles of the phonograph and magnetic wire recording. To reproduce the sound on your record, made from the wax master plate, you use a pick-up which changes mechanical movement into electrical currents. To reproduce the sounds of a wire recorder, the magnetised steel wire runs through a coil and induces electrical current therein.

In talks the sound that goes with the action is recorded by a photographic method in which amplified sounds activate a shutter which intercepts a beam of light. These light variations are photographed on the sound track of the film. To re-convert them into electric currents, a photo-electric cell tube is used. This tube converts light into electricity; more current for more light and less current for less light. It will convert into electric currents the whispered words of many a film love-scene or the roar of a train, to be heard through the loudspeakers of your local movie theatre. The performance is enhanced by a mercury vapour lamp, designed by the Philips organisation, that equals the surface brightness of the sun!

In a modern Brisbane hotel there is a photocell device that closes the door of the lift behind you. Without knowing it you intercept a beam of light which "triggers" the mechanism. And it's a safe bet that many of the packages on your grocer's shelves were counted and inspected with the aid of a photocell.

SUPERSONICS

You might not suspect that homogenised and pasteurised milk come in close contact with another off-shoot of electronics, namely supersonics. That is what sound vibrations are called when they go beyond human hearing, i.e., higher than 16,000 cycles per second. Supersonics are actually sound waves that may be generated by electronic vibrations in a sound-producing device similar to a loudspeaker. They go as high as 500,000 cycles per second, killing bacteria by their violent vibration. Thus, they are used to pasteurise milk. The milk retains more of its original qualities than when pasteurised by heat.

Certain toilet lotions and similar emulsions do not have to be shaken before using because supersonics did it for keeps during manufacture and far better than you ever could. Many a chemical process is accelerated, sulphur drugs made more effective, shell casings inspected, and ships guided into harbours by supersonics. Destructive

beetles can be kept away from shrubbery and fruit trees, and seagulls away from drinking water in reservoirs because supersonic sound waves are very annoying to such insects and birds.

RADIO

At higher frequencies, we find electrons move either with the help of conductors or generate waves right through space, as radio broadcasts use. Quite a number of radio stations radiate up to 50,000 watts of electrical energy—the equivalent of some 70 horsepower—on frequencies from 550,000 to well above 20 million cycles per second. The lower frequencies which you find on your radio dial are for local use, while the higher ones serve for medium distance and world-wide coverage. With the help of a photocell at the transmitter, translating light and dark into electrical impulses, and an electrically controlled "fountain pen" at the receiver, news photos are transmitted from continent to continent.

HIGH FREQUENCY HEATING

Your canned fruit mill will have come from a container soldered with "Radioheat." You can glue plywood sheets together in minutes instead of hours by applying radioheat—at a frequency of around 15 million cycles per second. The manufacture of penicillin is hastened and the flow and quality of plastics improved by radioheat. Philips developed high power electronic tubes for this special application.

TELEVISION

Television uses the part of the frequency spectrum around 50 million cycles per second. It is just another combination of photocell action and radio technique. In the television studio a "pick-up tube" is focussed on the scene to be televised. Inside the pick-up tube are thousands of miniature photocells that capture the light reflected by the scene to be televised, and they convert this light into minute electrical currents. These currents are released, one after another, with the aid of a scanning device, instantly amplified and broadcast.

At the receiving end the scene is reconstructed by a special tube called a cathode ray tube, many of which are manufactured by Philips. In a cathode ray tube a sharp beam of electrons is shot by an electron gun at a fluorescent screen of a diameter varying from 5 to 20 inches. During television reception, auxiliary currents guide this electron beam to the correct position on the screen, which lights up only at the point where the electrons hit. In this way the scene is built up, piece by piece, in exactly the same sequence as the "scanning" is done in the pick-up tube at the studio. By presenting thirty images a second, smooth flowing movement is seen on the screen. With the use of special lenses an enlarged picture can be projected, making television as entertaining as a home movie show. Black and white television requires only one scanning for each image, but colour television needs three. The first scanning releases the red, the second the yellow, and the third the blue light components of a scene to be televised. Combination colours are then separated into their primary components; green for instance, into yellow and blue. Your impression of a green picture at the receiver is then created by flashing quickly, one after another, its yellow and blue components, coloured by a rotating colour disc placed in front of the cathode ray tube.

OTHER APPLICATIONS

Electromagnetic radiation on very high frequency bounces back from buildings, bridges and similar structures—a sort of electronic echo. We use this electronic echo to detect planes and ships when they are still out of sight or hearing range. These same very high frequencies are used to guide commercial air traffic around the country and help pilots to land planes safely in bad weather conditions.

By using a specially developed high frequency cable, hundreds of telephone conversations can be handled at the same time, between two cities for instance, where

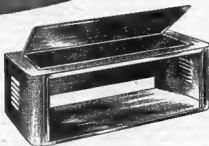
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formerly hundreds of wires were needed. Later developments indicate that such telephone traffic can also be handled by low powered radio stations, working in relay on very high frequencies and placed approximately 35 miles apart. With higher frequencies smaller components are used. So "Walkie-Talkies" became possible. Similar developments will give you, in the future, your own "Walkie-Talkie" in your car.

INFRA-RED

Higher than the highest radio frequencies, but just lower than visible light, is the invisible infra-red portion of the electromagnetic spectrum. It is produced in filament type lamps that also give some visible light. You observe the infra-red radiation more as warmth than as light, because it has the pleasant characteristic of causing heat upon impact. When infra-red radiation strikes a freshly painted car, it will dry the paint from the inside out rapidly because the metal heats faster than the paint. As there is no need to heat a bulky oven, infra-red is very economical. An industrial tool of no small importance, it dehydrates, anneals and pre-heats a great variety of products at low cost and is destined for even more important uses in the future.

VISIBLE LIGHT

The division of the electromagnetic spectrum that follows infra-red is the radiation called light, for which you have the antennae right in your head—your eyes.

When light creates a photochemical reaction in your eyes which you experience as sight. Fluorescent lamps stand out here as major developments of the gas-filled electronic discharge tube. Their light is caused by the impact of electrical charges, increased by violent collision between electrons and gas atoms, on the fluorescent powder, covering the inside of the glass tubes. Much of the development work was done by Philips.

ULTRA-VIOLET

Still higher in frequency than visible light is the ultra-violet portion of the electromagnetic spectrum. A part of it is responsible for your suntan. Another makes meat tender, kills bacteria, and detects false pearls. By the name "black light"—because it is invisible—it mystifies

many a theatre audience, revealing people moving about on the stage without head or legs. This effect is obtained by treating with fluorescent materials only those parts of the costume that are to be visible.

X-RAYS

X-rays partly overlap and follow the ultra-violet. More dangerous to the layman than ultra-violet, they render valuable service to mankind both in therapy and diagnostics. They are electromagnetic vibrations resulting from bombardment of electrons against a metal target placed in high vacuum, and they pass easily between the atoms of matter. Depending on the density of the atomic structure of such matter, X-rays are more or less absorbed so that human tissue and bone, for instance, show up on X-ray photos or fluorescent screens as shadows of different degrees of blackness. These penetrating rays also help to inspect metals for internal flaws, align spark plugs, and detect foreign substances in foods.

A special technique uses the reflection of X-rays caused by the atoms in the crystal structure of materials. Pioneered by Philips and known as X-ray diffraction, this technique makes accurate analysis of materials faster and surer. High voltage is essential for the generation of X-rays; the higher the voltage, the higher the frequency, the more penetrating they become. With two million volts, photography through twelve inches of steel plate has been possible, revealing cracks or impurities. In this way the efficiency of many a major weapon of war and product of peace has been substantially increased.

PARASITICS.

That darn word is being overworked lately. It seems that in the December issue of *Amateur Radio* we gave the name of the author of "Selectivity", which appeared in the November issue, as A. F. Nickson VK3NB, whilst in point of fact the article in question was written by Mr. G. W. Neilson of 34 Andrew Street, Northcote. Our apologies to the gentleman concerned,—it must have been the Xmas spirit. (Tech. Ed.)

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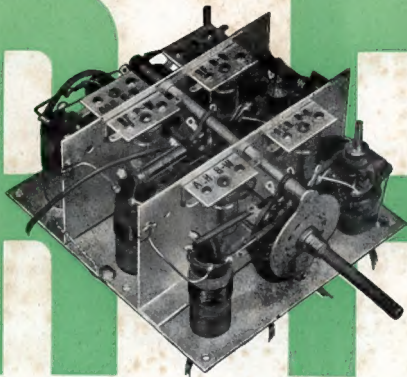
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